CLAIMS

1. Catalyst components for the polymerization of olefins $CH_2=CHR^{VIII}$, wherein R^{VIII} is hydrogen or hydrocarbon radical having 1-12 carbon atoms, comprising Ti, Mg, Cl and optionally OR groups, and characterized by the following properties:
   - surface area, determined by BET method, of lower than 100 m^2/g,
   - a total porosity, measured by the mercury method, of higher than 0.25 cm^3/g and,
   - a pore radius distribution such that at least 45% of the total porosity is due to pores with radius up to 0.1μm.
2. Catalyst components according to claim 1 in which the catalyst component comprises a Ti compound having at least one Ti-halogen bond supported on magnesium chloride in active form.
3. Catalyst components according to claim 1 containing groups different from halogen, in amount lower than 0.3 mole for each mole of titanium.
4. Catalyst components according to claim 1 in which the total porosity is between 0.35 and 1.2 cm^3/g.
5. Catalyst components according to claim 4 in which the total porosity is between 0.38 and 0.9.
6. Catalyst components according to claim 1 in which the porosity due to pores with radius up to 1μm is between 0.3 and 1 cm^3/g.
7. Catalyst components according to claim 6 in which the porosity due to pores with radius up to 1μm is between 0.34 and 0.8.
8. Catalyst components according to claim 4 in which the value of the porosity due to pores with radius higher than μm is lower than 25% with respect to the total porosity.
9. Catalyst components according to claim 8 in which the value of the porosity due to pores with radius higher than μm is lower than 15% with respect to the total porosity.
10. Catalyst component according to claim 1 in which the surface area measured by the B.E.T. method is preferably lower than 80 m^2/g.
11. Catalyst component according to claim 1 in which the surface area is between 30 and 70 m^2/g.
12. Catalyst component according to claim 1 in which the porosity measured by the BET method is generally comprised between 0.1 and 0.5 cm^3/g.
13. Catalyst component according to claim 12 in which the porosity is from 0.15 to 0.4

cm^3/g.

14. Catalyst component according to claim 1 in which more than 50% of the total porosity is due to pores with radius up to 0.1μm.

15. Catalyst component according to claim 1 in which more than 65% of the total porosity is due to pores with radius up to 0.1μm.

16. Catalyst components according to claim 1 in which the average pore radius value, for porosity due to pores up to 1μm, is lower than 0.09μm.

17. Catalyst components according to claim 16 in which the average pore radius value, for porosity due to pores up to 1μm, is lower than 0.08μm.

18. Catalyst components according to claim 17 in which the average pore radius value, for porosity due to pores up to 1μm, is lower than 0.07μm.

19. Catalyst components according to claim 1 in which the titanium compound has the formula $Ti(OR^V)_nX_{y-n}$, wherein n is a number comprised between 0 and 0.5 inclusive, y is the valence of titanium, R^V is an alkyl, cycloalkyl or aryl radical having 2-8 carbon atoms and X is chlorine.

20. Catalyst components according to claim 19 in which y is 3 or 4, and n is 0.

21. A process for the preparation of the catalyst components of claim 1 comprising the following steps:

(a) reacting a compound $MgCl_2.mR^{VI}OH$, wherein $0.3 \leq m \leq 1.7$ and R^{VI} is an alkyl, cycloalkyl or aryl radical having 1-12 carbon atoms, with a titanium compound of the formula $Ti(OR^V)_nX_{y-n}$, in which n is comprised between 0 and 0,5, y is the valence of titanium, X is halogen and R^V is an alkyl radical having 2-8 carbon atoms;

(b) reacting the product obtained from (a) with An Al-alkyl compound and

(c) reacting the product obtained from (b) with a titanium compound of the formula $Ti(OR^V)_nX_{y-n}$, in which n is comprised between 0 and 0,5, y is the valence of titanium, X is halogen and R^V is an alkyl radical having 2-8 carbon atoms.

22. Process according to claim 21 in which he compound $MgCl_2 \cdot mR^{VI}OH$ is prepared by thermal dealcoholation of adducts $MgCl_2 \cdot pR^{VI}OH$, wherein p is a number higher than 2.

23. Process according to claim 21 in which the titanium compound used in step (a) and (c) is $TiCl_4$.

24. Process according to claim 21 and 22 in which R^{VI} is ethyl.

25. Process according to claim 21 in which the aluminum alkyl compound of step (b) is selected from those of formula R_zAlX_{3-z} in which R is a C_1-C_{20} hydrocarbon group, z is an integer ranging from 1 to 3 and X is chlorine.

26. Process according to claim 25 in which the aluminum alkyl compound is a trialkyl aluminum compounds selected from the group consisting of triethylaluminum, triisobutylaluminum, tri-n-butylaluminum, tri-n-hexylaluminum, tri-n-octylaluminum.

27. Process according to claim 26 in which the aluminum alkyl compound is tri-n-octylaluminum.

28. Catalysts for the polymerization of olefins comprising the product of the reaction between an aluminum alkyl compound and a catalyst component according to one or more of the claims 1-20.

29. Pre-polymerized catalyst for the polymerization of olefins obtained by pre-polymerizing ethylene or mixtures thereof containing one or more α-olefins, with a catalyst according to claim 28 and thereby forming amounts of polymer from 0.1 up to 1000 g per gram of solid catalyst component.

30. Process for the polymerization of olefins $CH_2=CHR^{VIII}$, wherein R^{VIII} is hydrogen or hydrocarbon radical having 1-12 carbon atoms, carried out in the presence of a catalyst according to any of the claims 28-29.

31. Process for the preparation of broad molecular weight distribution ethylene polymers having a F/E ratio higher than 100 characterized in that it is carried out in the presence of a catalyst according to claims 28-29.

32. Process according to claim 31 in which the F/E ratio is higher than 120.

33. Process according to claim 31 characterized by the fact that it is carried out more than one step working under different polymerization conditions.

34. Polymer products obtainable from the processes according to any of the claims 30-33.